

sides of the adjacent ones,—they are, in fact, the optical effect of a difference in the substance along these lines, and are rendered conspicuous by the fact that the lower surface of the disk is tinged with bright colors, which leave narrow spaces in the direction of these junctions unoccupied, the colorless streak being narrower along the long junctions, and somewhat broader along the short junctions. The crooked lines, on the contrary, are the optical effect of a projecting ridge of the hyaline substance of the disk, rising from the lower surface, partly in a straight line and partly in an undulating course. The longer, broken lines, in front of the deeper emarginations, as well as the smaller ones facing the lesser emarginations, are the optical effect of the sudden reduction of the thickness of the disk, near the margin; and as the gelatinous mass thins more abruptly, and over a wider area, in the direction of the short junctions than in that of the long junctions, the first are larger, and further removed from the margin of the disk than the latter.

To understand correctly this description, and *Fig. 1* of Plate V., referred to above, it must be borne in mind, therefore, that what might be taken for lines upon the surface of the disk, are, in reality, the optical effect of parts occupying the thickness of the disk, and its lower surface, but seen through a considerable thickness of the peculiar hyaline tissue which constitutes the disk, and which is so transparent that every structure within it, or upon its lower surface, is visible at the upper surface. It is as if a mass of transparent jelly of a flat, hemispheric form, was resting upon a surface adorned with various structural details, which could all readily be seen through the jelly. But this is not all. The disk has a very unequal thickness in different parts of its expansion, and neither the upper nor the lower surface is even. It is true the upper surface seems to be uniformly arched, and yet on closer examination it will readily be perceived that whether the animal is at rest and fully expanded, so that the upper surface is nearly flat, or whether it is arched upward by the bending down of the edges, the whole surface exhibits undulations which stand in direct relation with the thickness of the disk, in the direction of the short and long junctions, along the intervening spaces, and along the marginal curves; and these undulations form really symmetrical bulgings and depressions, some extending radiatingly from the centre towards the circumference, and others, festoon-like, from one of the radiating swellings to the other.

The lower surface of the disk, when the lower floor is removed, presents still greater irregularities, Pl. IV. *Fig. 1*, in the segment *a'*, in the shape of deep furrows, extending from the inner circle alluded to above, along the short and the long junctions, and of marked bulgings in the masses limited by these furrows. The thickness of the gelatinous mass is very unequal here. It is most prominent at a short distance from the long junctions, along the crooked lines, and rounded off towards the inner circle, as well as along the long and the short junctions, lessening